

Example #14: Find the cost of operating a kettle for 15 min if it draws 10 A from a standard 120 V outlet, and the cost is 5.5¢/kWh.

$$\rightarrow 15 \text{ min} \times \frac{1 \text{ hr}}{60 \text{ min}} = 0.25 \text{ hr.}$$

$$\rightarrow P = IV = 10(120) = 1200 \text{ W}$$

$$\rightarrow 1200 \text{ W} = 1.2 \text{ kW.}$$

$$\rightarrow \text{energy used: } P = \frac{\Delta E}{t}$$

$$\Delta E = 1.2(0.25) = 0.30 \text{ kW}\cdot\text{h}$$

$$\rightarrow \text{cost} = 0.30 \text{ kW}\cdot\text{h} \times \frac{\$.055}{\text{kW}\cdot\text{h}}$$

$$= \boxed{\$.017}$$